DECLARATION OF ROBERT W. CRANDALL

Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	CC Docket No. 98-147
Deployment of Wireline Services Offering	)	
Advanced Telecommunications Capability	)	

Declaration of Robert W. Crandall

Qualifications

1. I am a Senior Fellow in Economic Studies at the Brookings Institution in Washington, DC, a position that I have held since 1978.[1] Prior to that I was Acting Director, Deputy Director, and Assistant Director of the Council on Wage and Price Stability in the Executive Office of the President, and in 1974-75 I was an adviser to Commissioner Glen Robinson of the Federal Communications Commission. I was an Assistant Professor and Associate Professor of Economics at MIT between 1966 and 1974. I have written widely on telecommunications policy, the economics of broadcasting, and the economics of cable television. I am author or co-author of four books on communications policy published by the Brookings Institution since 1989: Changing the Rules: Technological Change, International Competition, and Regulation in Communications (with Kenneth Flamm), 1989; After the Breakup: U.S. Telecommunications in a more Competitive Era, 1991; Talk is Cheap: The Promise of Regulatory Reform in North American Telecommunications (with Leonard Waverman), 1996; and Cable TV: Regulation or Competition? (with Harold Furchtgott-Roth), 1996. A new book on universal-service policy, co-

[1]The views expressed herein are solely my own and should not be taken to represent the views of the Brookings Institution, its other staff members, or its Trustees.

authored with Leonard Waverman, will be published by Brookings at the end of this year. A copy of my curriculum vitae is attached.

2. I have been asked by Bell Atlantic to provide an analysis of the extent to which incumbent local exchange carriers (ILECs) should be required to share their local loops with competitors as contemplated by the FCC in its NPRM. To do so, I draw upon general economic principles as well as recent developments in technology and market entry in local wireline and wireless services.

3. The term "line sharing" appears to be used interchangeably by different parties to refer to slightly different things, and it is not clear which is contemplated by the NPRM. Some parties use the term to mean that the high frequency portion of the loop should be considered an unbundled network element over which a competing carrier provides data services only and pays TELRIC rates -- regardless of whether the loop is also used to provide dial tone line (i.e. voice) service. Other parties use the term to mean that two different carriers would offer voice and data services respectively over a single line. The two carriers may be both competing carriers or an incumbent carrier and a competing carrier. Both variations are undesirable from an economic perspective and should be rejected.

Summary of Conclusions

4. The 1996 Telecommunications Act's unbundling requirements are designed to foster entry into local telecommunications service markets in which the ILEC was traditionally the dominant carrier. The current proposal seeks to extend unbundling even further to facilitate entry into new, advanced services markets in which the ILEC has no dominant position and may even be behind its cable television and CLEC rivals in offering such services. There is no reason for

the Commission to handicap the ILECs with further unbundling requirements to facilitate competition in such a situation.

5. The Commission's proposal for line sharing unnecessarily creates problems for ILEC network development and discourages investment in new network facilities. If ILECs are required to share their lines with entrants at TELRIC rates, these entrants will have far less incentive to deploy alternative technologies -- such as those using terrestrial wireless or satellite circuits -- thereby reducing the degree of competition in the advanced-services marketplace. Moreover, the line-sharing proposal sharply reduces the incentive for the entrants to offer the entire package of local services -- including basic voice services -- one of the principal goals of the 1996 Telecommunications Act.

6. Similarly, new regulatory requirements to share their lines at TELRIC rates would severely reduce the incentive for ILECs to develop their own advanced services since their rivals would be able to lease the portion of the subscriber line required for such service at TELRIC rates. If line sharing is required only where the ILEC offers its own advanced services, such as digital subscriber line (DSL) service, ILECs would be much less likely to offer such services in many areas. But even if line sharing is mandated everywhere, such a requirement would reduce the prospective ability of the ILEC to cover its fixed costs of developing new advanced services and thereby reduce its incentives to develop such services at all, depriving the public of an important source of such new services.

7. Line sharing would limit the ability of ILECs to recover the cost of their fixed facilities from new services provided jointly over their subscriber access lines. The effect of the proposal is to allow CLECs the ability to offer advanced services over part of the line while leaving the ILECs with the obligation to offer basic local service at rates that are generally below cost for residential subscribers.

8. The adoption of a line-sharing requirement would create large problems in establishing the regulated wholesale price for only a portion of the line's capacity. The Commission should not further complicate an already needlessly complicated process of determining the cost of unbundled elements.

The Advanced Services Marketplace

9. Internet usage has grown so rapidly that data traffic is now greater than voice traffic in the nation's telecommunications network. Much of this growth is attributable to the continuing expansion of the Internet. However, most Internet subscribers are still constrained by their inability to download Internet services at rates of more than 56 Kbs, using traditional modems and their analog local line, or 128 Kbs, using ISDN services. As a result, carriers are now developing new high-speed Internet connections to bundle with other communications services. Cable television companies (including AT&T's new cable operations), CLECS, ILECs, and satellite companies are now only beginning to deploy a variety of alternative high-speed services to provide to dispersed subscribers as separate, independent services or as part of a bundle of communications services.

10. These new advanced, high-speed services are still in their infancy. Fewer than 1 million cable modems have been deployed; far fewer subscribers have begun to subscribe to ILECs' DSL services.[2] Moreover, many carriers are assembling LMDS and MMDS licenses in major markets for the purpose of offering a variety of telecommunications services, including advanced services. At this juncture, it is simply impossible to predict how the market for these

[2] See the UNE Fact Report, submitted with USTA's comments in *Implementation of Local Competition Provisions in Telecommuncations Act of 1996*, CC Docket 96-98, May 26, 1999.

advanced services will develop and which technologies will be the most successful. The Commission has no way of knowing whether DSL services will prove to be successful or if CLEC provision of DSL services over existing copper loops will be an important contributor in the market for advanced services.

The Dangers of Excessive Reliance on Unbundling

11. In a Declaration filed with Bell Atlantic's comments in the recent UNE Remand proceeding[3], I showed that the Commission's initial 1996 decision to require extensive unbundling of ILEC networks for the purpose of enhancing competition in basic local service created substantial risks. For a number of reasons, these risks are exacerbated for new, advanced services in which the ILECs have only begun to make investments.

12. First, allowing CLECs to lease unbundled elements at regulated prices based on forward-looking costs creates a substantial disincentive for entrants to place their capital at risk by building their own facilities. Why would an entrant invest millions or even billions of dollars in sunk costs if it could simply obtain them from incumbents at an equivalent lease rate? This concern is much more serious for advanced services than for basic services since neither the CLECs nor the ILECs have very much market evidence on the likely success of various technologies or the extent of consumer demand. A CLEC may believe that a different network design or technology is better than one that uses a shared ILEC loop, but decide to lease a share of the ILEC's line at some measure of TELRIC rather than risking investment in new facilities.

[3] Comments of Bell Atlantic, *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-98, May 26, 1999.

13. Second, as long as the ILEC knows that it must lease its facilities at TELRIC rates, its incentive to invest in network upgrades required for DSL technology is severely attenuated. If line sharing is required only where the ILEC offers its own DSL or equivalent service, its incentive to develop such a service will be reduced. If line sharing is required everywhere, the ILEC's incentives to invest in the requisite central-office facilities, line conditioning, and fixed marketing and distribution expenses are also reduced since the profitability of such a service is surely a function of its ability to offer DSL over the same lines as those used for current voice-grade services. If it is forced to share these lines at TELRIC rates, it has much less incentive to invest in the facilities required to deliver advanced services.

14. The effect of a line-sharing unbundling requirement is also to reduce the incentive for CLECs to develop a complete package of services, including basic voice service. A major purpose of the 1996 Act and of its unbundling provisions is to stimulate competition in basic telecommunications services, but extending the unbundling concept to line sharing will only reduce the incentive of CLECs to compete in the market for basic voice services.

15. Finally, far too little attention has been paid to the adverse incentives created by ILEC lessors and CLEC lessees sharing the same network -- much less the same subscriber line -- to deliver telecom services. Both the networks and the services offered by incumbents and entrants are subject to substantial change over time. Any decision by an ILEC to modify its network to provide new or better services or to deliver them more efficiently is likely to have an impact on the CLECs leasing pieces of its network. These CLECs will surely have every incentive to complain to regulators that network changes are designed to disadvantage them (the CLECs) and thereby to block or delay their rivals' attempts to develop more attractive services. If every innovation in network design must first be scrutinized by rival CLECs who are lessees of network elements, particularly those sharing their lines, surely the pace of innovation will slow substantially. For instance, ILECs might be forced to delay the substitution of fiber for copper or

the substitution of packet switching for circuit switching technologies by CLEC complaints that they are disadvantaged by such technical progress.

16. Regulators in rivalrous markets are always at risk of being used by market participants to frustrate competition. Widespread unbundling, including line sharing, simply multiplies these opportunities many times over. The more extensive are the unbundling requirements, the greater are the opportunities for conflict and opportunistic use of the regulatory process. The NPRM Rulemaking already reflects precisely such regulatory conflicts and opportunism by CLECs. In response to CLEC entreaties, the Commission asks whether it should seek "...specifications on the types and number of technologies that can be deployed within a binder group."[4] It also asks if it should require carriers to replace an existing technology, AMI T1, with "less interfering technologies" for the benefit of CLECs seeking to share their lines.[5] These demands for regulation of ILEC decisions on technology deployment, if satisfied by the Commission, are likely to have extremely adverse effects on ILECs' investment in facilities.

17. It is not sufficient for the Commission to note that because ILECs already provide both voice and advanced services over the same line that independent provision of one service by a CLEC and the other by the ILEC will not create technical problems. The ILEC has every incentive to assure that both services are delivered efficiently and without degradation if it offers both services. When two independent rivals offer services over the same line, these incentives do not exist. As a result, line sharing could create technical problems that are difficult to resolve and a needless source of controversy with state and federal regulators.

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[4]NPRM at 86.

[5]NPRM at 87.

Line Sharing and Retail Rate Regulation

18. In the NPRM, the Commission argues that:

> "Shared line access makes it possible for a competing carrier to offer advanced services over the same line that a consumer uses for voice service without requiring the competing carrier to take over responsibility for providing the voice service... Shared line access could also remove any cost disadvantage that an advanced services only provider might face if it had to provide advanced services over a stand-alone line."[6]

But this line of reasoning ignores the fact that the CLEC could also provide both services. Why would the CLEC wish to avoid providing the voice services as well, once it has access to the subscriber and is offering the subscriber a complementary service? The answer must be that the provision of the voice service, undertaken by the ILEC as part of its carrier-of-last-resort responsibilities, is not economically remunerative to the CLEC. The CLEC might find that the net revenues from the basic voice service does not even cover the incremental cost of the rest of the line.

19. Therefore, the Commission's desire to remove a hypothetical CLEC cost disadvantage through line sharing amounts to a policy to saddle the ILEC with a limited service whose regulated retail rate is often insufficient to cover the service's costs. To "enable" the CLEC to provide only the advanced service by leasing the non-voice frequencies of the access line at TELRIC rates thus provides the CLEC with the a large potential advantage not available to the ILEC whose retail flat rates for local service are often below the cost of service, particularly for residential subscribers in less dense areas. In addition, it discourages the CLEC from offering the

[6]NPRM at 93.

basic service, thereby reducing competition in these services -- a primary goal of the 1996 Act from which this proposal derives.

The Rationale for Unbundling Requirements

20. The 1996 Act requires ILECs to unbundle their network facilities so as to accelerate the pace of entry into local telecommunications markets. But such unbundling is limited to those elements that are "necessary", or without which likely entrants would be "impaired" in their efforts to begin to offer local service.[7] From an economic standpoint, these requirements are satisfied only when there are no good substitutes for the incumbents' facilities -- either in the form of other firms' facilities or through the entrant's own investment in facilities that are constructed to provide local access/exchange service. For instance, there may be few economic alternatives to the ILEC's copper loop in low-density markets unless commercial mobile radio services (CMRS) and cable modems prove to be an economic alternative to traditional wireline local service.

21. For new, advanced services, however, there are no established carriers serving a large share of the nation's households. Indeed, at this juncture, it appears that cable systems are better established in this marketplace than are the ILECs. It is therefore impossible to conclude that some portion of an ILEC's facilities is "necessary" for competition to develop in these new services. This is all the more true where the CLECs already have the alternative of leasing the entire of the loop and providing a package of voice and data services over that loop. To require further unbundling of the loop -- in the form of line sharing -- would therefore result in the Commission requiring the ILEC to offer a portion of its loops at regulated wholesale rates to facilitate competition in new services before there is any evidence whatsoever that such

[7] Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996 Act).

unbundling is necessary to develop competition in this nascent market.[8] To saddle one of the major potential competitors in these markets, the ILECs, with severe new regulatory constraints at this early point of the development of advanced services could itself impair the development of competition because of the adverse incentives potentially created by such regulation.

Line Sharing and Wholesale Rate Regulation

22. Obviously, line sharing creates a major problem of allocating the costs of a fixed facility among two or more different services. An unregulated carrier will develop its own algorithm for allocating these costs depending on its views on the nature of demand for the services and the availability of substitutes. Regulators, however, will find it difficult to arbitrate among competing claims on how to allocate the costs of these common facilities.

23. As the Commission knows too well, these problems have been at the center of its difficulty in selecting a cost model for managing the high-cost universal-service policy for more than three years. It is far from a trivial matter to allocate these costs among different services, especially in a series of contentious regulatory proceedings. Nor is this a new revelation to the Commission, for in the 1970s it struggled continually with the problem of cost allocation in attempting to regulate AT&T's private-line rates. It is no exaggeration to say that the Commission failed in its effort to divine AT&T's costs for these services, eventually simply giving up.[9]

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[8] In the NPRM, the Commission tentatively concludes that "...without such a ruling [requiring ILECs to share their access lines with CLECs], competitive LECs will be hampered in their ability to compete in providing advanced services..." But it does not demonstrate that, in this new market, there are no economic alternatives to line sharing for offering advanced services." NPRM at 99.

[9] See Walter G. Bolter, "The FCC's Selection of a 'Proper' Costing Standard after Fifteen Years -- What Can We Learn from Docket #18128?" in Assessing New Pricing Concepts in Public Utilities, Proceedings of the Institute for Public Utilities' Ninth Annual Conference, Michigan State University, Graduate School of Business, 1978, pp. 333-72.

24. Allocating the joint costs of providing various frequency bands over the same line will result in the same jurisdictional struggles between the Commission and state regulators as have other exercises in allocating nontraffic sensitive costs. Before the Commission opens up this new avenue towards jurisdictional divisiveness, it surely owes the participants an explanation of why one might expect this dispute to be resolved any less inefficiently than were earlier disputes over the use of fixed monthly charges and per-minute access charges.

I hereby declare, under the penalty of perjury, that the foregoing is true and correct to the best of my knowledge and belief.

Robert W. Crandall 6/9/99

Robert W. Crandall

ROBERT W. CRANDALL

CURRENT POSITION:

Senior Fellow, The Brookings Institution, 1978 - Present

ADDRESS:

1775 Massachusetts Ave., NW
Washington, DC 20036

Phone No: 202-797-6291
Fax. No.: 202-797-6181
E-mail: rcrandall@brook.edu

FIELDS OF SPECIALIZATION:

Industrial Organization, Antitrust Policy, Regulation

PREVIOUS POSITIONS:

Adjunct Professor, School of Public Affairs, University of Maryland, 1987 - 1993
Deputy Director, Council on Wage and Price Stability, 1977 - 1978
Acting Director, Council on Wage and Price Stability, 1977
Adjunct Associate Professor of Economics, George Washington University, 1975 - 1977
Assistant Director, Council on Wage and Price Stability, 1975 - 1977
Associate Professor of Economics, M.I.T., 1972 - 1974
Assistant Professor of Economics, M.I.T., 1966 - 1972
Johnson Research Fellow, The Brookings Institution, 1965 - 1966
Instructor, Northwestern University, 1964 - 1965
Consultant to Environmental Protection Agency, Antitrust Division Federal Trade Commission, Treasury Department, various years

EDUCATION:

Ph.D., Economics, Northwestern University, 1968
M.A., Economics, Northwestern University, 1965
A.B., Economics, University of Cincinnati, 1962

HONORS and AWARDS:

Phi Beta Kappa

MEMBERSHIPS:

American Economic Association
Board of Directors, Baltimore Life Insurance Company
Board of Directors, Economists Incorporated

PERSONAL DATA:

Place and Date of Birth: Akron, Ohio: February 28, 1940

Home Address: 5100 - 38th Street, NW
Washington, DC 20016

PUBLICATIONS:

Books:

Cable TV: Regulation or Competition? (with Harold Furchtgott-Roth), Washington: The Brookings Institution, 1996.

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STATEMENT OF DR. CHARLES L. JACKSON

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, DC 20554

In the Matter of	)	
	)	
Deployment of Wireline Services Offering Advanced Telecommunications Capability	))	CC Docket No. 98-147
	)	

STATEMENT OF DR. CHARLES L. JACKSON

CONTENTS

INTRODUCTION

1. In this statement, I respond to some of the technical questions raised in the Commission's Further Notice of Proposed Rulemaking in this proceeding and address the technical feasibility and practicality of line sharing.